

# Subject Index to Volume 1

- Acetylcholine**  
smooth muscle cell responses (frog), C144
- Action potentials:** *see* Potentials, action
- Adenosine triphosphatase:** *see* Calcium-ATPase; Sodium-potassium-ATPase
- Adenosine triphosphate**  
utilization with recovery metabolism (frog), C30
- Adrenergic transmission:** *see* Transmission
- Afferent nerves**  
hepatic venous pressoreceptor discharges, C76
- Aldosterone**  
rRNA synthesis, bladder (toad), C174
- Amines**  
uptake, aortic endothelium (pig), C88  
uptake, pulmonary artery endothelium (pig), C88
- Amino acids**  
His-Leu hydrolysis, and converting enzyme activity, endothelial (pig), C95  
leukocytic endogenous mediator, hepatic, C15  
uptake, in insulin-sensitive muscle, neurotrophic regulation, C83  
Z-Phe-His-Leu hydrolysis, and converting enzyme activity, endothelial (pig), C95
- Aminoisobutyric acid**  
uptake, in insulin-sensitive muscle, C83
- Aorta**  
amine uptake and metabolism, endothelial (pig), C88  
converting enzyme activity, endothelial (pig), C95
- Apparatus and techniques:** *see also* Computers  
Coulter counter, contraction of isolated smooth muscle cells in suspension (frog), C138  
Coulter counter, smooth muscle responses to cholinergic drugs (frog), C144  
microelectrode, self filling and semifloating, glass, C207  
voltage clamp, axonal repetitive firing, *Gymnodinium breve* toxin and (squid), C23
- ATPase:** *see* Calcium-ATPase; Sodium-potassium-ATPase
- Atropine**  
smooth muscle cell responses (frog), C144
- Axon**  
repetitive firing, production by *Gymnodinium breve* toxin (squid), C23
- Birefringence**  
smooth muscle cells (toad), C5
- Bladder:** *see* Urinary bladder
- Blockade**  
synaptic, heavy metals, C128
- Blood pressure:** *see also* Pressure
- Blood pressure regulation**  
calcium ions, C165  
hypertension, C165  
sodium ions, C165
- Bone**  
matrix, calcification-initiator noncollagenous protein, C115  
morphogenesis, and noncollagenous protein, C115
- Cadmium**  
adrenergic neuromuscular transmission, C128
- Calcification**  
bone matrix, protein-initiated, C115
- Calcium:** *see also* Sodium-calcium exchange  
Calcium-ATPase  
intracellular, activity, C50  
Calcium ions  
blood pressure regulation, C165  
hypertension, C165  
Calcium ions, intracellular regulation, myometrium, C50  
transport, C50  
Calcium-sodium exchange  
smooth muscle relaxation, C59
- Carbachol**  
smooth muscle cell contraction, in suspension (frog), C138
- Carbamylcholine**  
smooth muscle cell responses (frog), C144
- Cells:** *see* specific site or type
- Chloride**  
conductance, skeletal muscle, C109
- Cholinergic drugs**  
smooth muscle cell responses (frog), C144
- Cholinergic receptors:** *see* Receptors, cholinergic
- Cholinesterase**  
smooth muscle cell responses (frog), C144
- Cinematography**  
myofilament reorientation during smooth muscle contraction (toad), C5
- Citrate synthase**  
skeletal muscle mitochondria, in thyrotoxicosis, C180
- Computers**  
analog-to-digital converter, C211  
buffer, C211  
data acquisition device, C211  
digital-to-analog converter, C211  
memory oscilloscope, C211  
multiplexer, C211  
recirculating static shift register, C211  
sample and hold, C211  
signal averager, C211  
time compression and expansion, C211  
transient storage device, C211
- Conductance**  
ionic, skeletal muscle, C109
- Contraction, smooth muscle:** *see* Muscle, smooth, contraction
- Converting enzyme:** *see* Enzyme, converting
- Coulter counter**  
contraction of isolated smooth muscle cells in suspension (frog), C138  
smooth muscle cell responses to cholinergic drugs (frog), C144
- Crossbridge**  
short-range muscle stiffness, C45
- Cytochrome c**  
skeletal muscle mitochondria, in thyrotoxicosis, C180
- Cytochrome oxidase**  
skeletal muscle mitochondria, in thyrotoxicosis, C180
- D600**  
smooth muscle relaxation, C59
- Data acquisition:** *see* Computers
- Denervation**  
ionic conductance response, skeletal muscle, C109
- Deoxycytidine**  
rRNA synthesis, bladder (toad), C174
- Diffusion**  
smooth muscle cells, limitations (frog), C144
- Dissociation constants**  
smooth muscle cells (frog), C144
- Drugs**  
cholinergic, smooth muscle cell responses (frog), C144  
transport and binding, in pulmonary edema, C132
- Edema, pulmonary**  
drug transport and binding in lung, C132  
 $\alpha$ -naphthylthiourea-induced, C132
- Electrical pathways**  
gallbladder, and hyperosmolality (*Necturus*), C99
- Electronic sizing**  
contraction of smooth muscle cells in suspension (frog), C138
- Electrophysiology**  
epithelium, gallbladder (*Necturus*), C99
- Endoplasmic reticulum**  
calcium ions, intracellular, myometrial, C50
- Endothelium**  
amine uptake and metabolism (pig), C88  
converting enzyme activity (pig), C95
- Enzyme, converting**  
amino acid hydrolysis (pig), C95  
aorta (pig), C95  
EDTA inhibition (pig), C95  
endothelial (pig), C95  
pulmonary artery (pig), C95  
SQ 20881 inhibition (pig), C95
- Epithelium**  
electrophysiology, gallbladder (*Necturus*), C99  
leaky, mucosal hyperosmolality (*Necturus*), C99  
nonelectrolytes, efflux, skin (frog), C67  
sodium entry and transport pool, skin (frog), C37

- sodium transport, skin (frog), C67
- transport, osmotic effects, gallbladder (*Necturus*), C99
- Ethylenediaminetetraacetic acid
  - converting enzyme inhibition, endothelial (pig), C95
- Excitation-contraction coupling
  - muscle fatigue and (frog), C185
  - post-tetanic (frog), C185
- Extracellular volume markers
  - stratum corneum (frog), C37
- F**atigue, muscular: *see* Muscle
- Filaments, muscle: *see* Myofilaments
- G**allbladder
  - electrical pathways (*Necturus*), C99
  - hyperosmolality, luminal (*Necturus*), C99
- Glycoprotein
  - bone matrix calcification, C115
- Gymnodinium breve* toxin
  - axonal repetitive firing (squid), C23
- H**ear
  - perfusion, hyperosmolality effects on tension, C155
  - phosphatase,  $K^+$ -dependent, thyroidal control, C196
  - sodium-potassium-ATPase, thyroidal control, C196, C202
  - thyroid hormone effects, C196
- Heart muscle: *see* Muscle, heart
- Hepatic artery
  - pressure, afferent discharges from venous pressoreceptors, C76
- Hepatic nerve
  - afferent discharges from venous pressoreceptors, C76
- 5-Hydroxytryptamine
  - uptake and metabolism, arterial endothelium (pig), C88
- Hyperosmolality
  - luminal, and gallbladder electrical pathways (*Necturus*), C99
  - mucosal, in leaky epithelium (*Necturus*), C99
- Hyperosmolality
  - heart muscle, resting and developed tension, C155
- Hypertension
  - blood pressure regulation, C165
  - calcium ions, C165
  - sodium-calcium exchange, C165
  - sodium ions, C165
- Hypertonic solutions
  - post-tetanic effects, muscle fiber (frog), C185
- Hypothyroidism
  - sodium-potassium-ATPase responses, C202
- I**mpedance
  - input, microelectrode modifications, C207
- Inotropy
  - thyroidal effects, heart, C196
- Inulin
  - space, stratum corneum (frog), C37
- Ionophores
  - activity, myometrium, C50
- Ions
  - conductance, skeletal muscle, C109
  - permeation, gallbladder epithelium (*Necturus*), C99

- J**ugular vein
  - perfusion, effect on afferent discharges from venous pressoreceptors, C76
- K**idney
  - microelectrode, self-filling and semifloating, glass, C207
- Kinetics
  - axonal repetitive firing produced by *Gymnodinium breve* toxin (squid), C23
  - receptor, smooth muscle cells (frog), C144
- L**anthanum
  - smooth muscle relaxation, C59
- Lead
  - adrenergic neuromuscular transmission, effects, C128
- Leukocytes
  - affinity adsorbent, C15
  - endogenous mediator, and endogenous pyrogen, differentiation, C15
- Liver
  - afferent discharges from venous pressoreceptors, C76
  - amino acid uptake, leukocytic endogenous mediator effects, C15
- Lung
  - amine uptake (pig), C88
  - drug binding, in edema, C132
  - drug transport, in edema, C132
  - permeability, in edema, C132
  - phenol red uptake, in edema, C132
- M**annitol
  - space, stratum corneum (frog), C37
- Membrane permeability: *see* Permeability
- Membrane potentials: *see* Potentials, membrane
- Membrane resistance: *see* Resistance, membrane
- Metabolism: *see also* specific substance or site
  - recovery, adenosine triphosphate utilization (frog), C30
- Metals
  - heavy, adrenergic neuromuscular transmission and, C128
- Microelectrodes
  - glass, self-filling and semifloating, C207
  - modifications, C207
- Microscopy, electron
  - myofilament reorientation during smooth muscle contraction (toad), C5
- Microscopy, polarization
  - myofilament reorientation during smooth muscle contraction (toad), C5
- Mitochondria
  - calcium ions, regulation, C50
- Mitochondria, skeletal muscle
  - enzymes, in thyrotoxicosis, C180
  - thyrotoxicosis, C180
- Muscle
  - amino acid uptake, neurotrophic regulation, C83
  - anaerobic metabolism, adenosine triphosphate utilization (frog), C30
  - crossbridge, in short-range stiffness, C45
  - excitation-contraction coupling, fatigue effects (frog), C185
  - insulin sensitivity, neurotrophic regulation, C83
  - post-tetanic potentiation (frog), C185

- recovery energetics (frog), C30
- recovery metabolism, adenosine triphosphate utilization (frog), C30
- series elastic component, in short-range stiffness, C45
- stiffness, short-range, active and passive components, C45
- Muscle, contraction
  - fatigue (frog), C185
  - post-tetanic (frog), C185
- Muscle fibers
  - post-tetanic potentiation (frog), C185
  - tetanic tension (frog), C185
- Muscle, heart
  - hyperosmolality, C155
  - inotropy, thyroidal effects, C196
  - tension, resting and developed, C155
- Muscle, metabolism
  - fatigue and (frog), C185
  - post-tetanic (frog), C185
- Muscle, skeletal
  - chloride conductance, C109
  - denervated, C109
  - ionic conductance, C109
  - membrane resistance, C109
  - mitochondria: *see* Mitochondria, skeletal muscle
  - potassium conductance, C109
  - thyrotoxicosis, C180
  - voltage-current relationship, in ionic conductance, C109
- Muscle, smooth
  - birefringence (toad), C5
  - diffusion limitations (frog), C144
  - prostaglandin E release, C191
  - relaxation, sodium activity, C59
  - sodium-potassium-ATPase inhibition, C191
- Muscle, smooth, contraction
  - cholinergic drug effects on isolated cells (frog), C144
  - detection, in cells in suspension (frog), C138
  - myofilament reorientation (toad), C5
  - receptor affinity (frog), C144
  - receptor kinetics (frog), C144
- Muscle, smooth, vascular
  - resistance, sodium-calcium exchange, C165
- Myofilaments
  - reorientation, smooth muscle (toad), C5
- Myometrium
  - calcium ions, intracellular, regulation, C50
- $Na^+K^+$ -ATPase: *see* Sodium-potassium-ATPase
- $\alpha$ -Naphthylthiourea
  - pulmonary edema, C132
- Nerve-muscle activity
  - amino acid uptake in insulin-sensitive muscle, C83
- Neuromuscular transmission: *see* Transmission
- Neurotrophic regulation
  - insulin-sensitive muscle, C83
- Neutrophils
  - endogenous pyrogen and leukocytic endogenous mediator, differentiation, C15
- Nonelectrolytes
  - efflux, transepithelial (frog), C67
  - resting and developed tension, heart muscle, C155
- Norepinephrine

- adrenergic neuromuscular transmission responses, C128  
uptake, arterial endothelium (pig), C88
- Organ culture**  
muscle, insulin-sensitive, neurotrophic regulation, C83
- Oscilloscope**  
memory, C211
- Osmotic effects**  
epithelial transport, gallbladder (*Necturus*), C99
- Ouabain**  
sodium-potassium-ATPase inhibition, taenia coli, C191
- Perfusion**  
heart, hyperosmolarity and tension, C155
- Perfusion**  
jugular vein, hepatic venous pressoreceptor discharge rate, C76
- Perfusion pressure: see** Pressure, perfusion
- Permeability**  
lung, in edema, C132
- Permeation**  
ion, gallbladder epithelium (*Necturus*), C99
- Phenol red**  
uptake, in pulmonary edema, C132
- Phosphatase**  
K<sup>+</sup>-dependent, heart, C196
- Plasma membrane**  
calcium ions, intracellular, myometrial, regulation, C50
- Portal vein**  
pressoreceptors, afferent discharges, C76
- Potassium: see also** Sodium-potassium-ATPase  
conductance, skeletal muscle, C109
- Potassium ions**  
leukocytic endogenous mediator effects, C15
- Potentials**  
action, axonal, *Gymnodinium breve* toxin effects (squid), C23  
membrane, microelectrode modifications, C207
- Potentiation**  
post-tetanic, muscle fibers (frog), C185
- Pressoreceptors: see** Receptors (pressoreceptors)
- Pressure: see also** Blood pressure
- Pressure**  
hepatic artery, afferent discharges from venous pressoreceptors, C76  
perfusion, afferent discharges from hepatic venous pressoreceptors, C76
- Prostaglandin E**  
sodium-potassium-ATPase effects, taenia coli, C191
- Protein**  
bone matrix, C115  
noncollagenous, bone matrix calcification initiator, C115
- Pulmonary artery**  
amine uptake and metabolism, endothelium (pig), C88  
converting enzyme activity, endothelium (pig), C95
- Pulmonary edema: see** Edema, pulmonary
- Pump**  
sodium, heart, C196
- Pyrogen**  
endogenous, and leukocytic endogenous mediator, differentiation, C15
- Radionuclide studies**  
pulmonary edema, drug transport and binding, C132
- Receptor affinity**  
smooth muscle cells (frog), C144
- Receptor kinetics**  
smooth muscle cells (frog), C144
- Receptors, cholinergic**  
smooth muscle cell responses (frog), C144
- Receptors (pressoreceptors)**  
hepatic venous, afferent discharges, C76
- Relaxation**  
sodium activity, smooth muscle, C59
- Resistance**  
membrane, skeletal muscle, C109  
vascular peripheral, sodium-calcium exchange, C165
- Ribonucleic acid, ribosomal**  
aldosterone effects, bladder (toad), C174  
3'-deoxycytidine effects, bladder (toad), C174  
synthesis, bladder (toad), C174
- Saphenous artery**  
adrenergic neuromuscular transmission, C128
- Series elastic component**  
short-range stiffness, C45
- Signal averager: see** Computers
- Skeletal muscle: see** Muscle, skeletal
- Shunt pathway**  
skin (frog), C67
- Skin**  
sodium entry and transport pool, stratum corneum (frog), C37
- Smooth muscle: see** Muscle, smooth
- Sodium**  
current, *Gymnodinium breve* toxin effects (squid), C23  
efflux, transepithelial (frog), C67  
entry and transport pool, stratum corneum (frog), C37  
space, stratum corneum (frog), C37  
transport, thyroid hormone control, heart, C196
- Sodium-calcium exchange**  
blood pressure regulation, C165  
smooth muscle relaxation, C59  
vascular smooth muscle, C165
- Sodium ions**  
blood pressure regulation, C165  
hypertension, C165
- Sodium-potassium-ATPase**  
prostaglandin E release, taenia coli, C191  
thyroid hormone control, heart, C196  
thyroid-stimulated, heart, C202
- Soleus muscle**  
stiffness, short-range, C45
- SQ 20881**  
converting enzyme inhibition, endothelial (pig), C95
- Stiffness**  
short-range, active and passive components, C45
- Stomach**  
muscularis, isolated cell responses to cholinergic drugs (frog), C144  
muscularis cells, contraction (frog), C138
- Sucrose**  
space, stratum corneum (frog), C37
- Sweat gland**  
microelectrode, self-filling and semifloating, glass, C207
- Synaptic blockade**  
heavy metals and, C128
- Taenia coli**  
prostaglandin E release, C191  
relaxation, sodium activity, C59  
sodium-potassium-ATPase inhibition, C191
- Tension**  
hyperosmolarity effects, heart muscle, C155  
tetanic, fatigue and (frog), C185  
tetanic, muscle fibers (frog), C185
- Thermogenesis**  
thyroid, C196
- Thyroid gland**  
sodium-potassium-ATPase stimulation, C202  
thermogenesis, C196
- Thyrotoxicosis**  
mitochondria, skeletal muscle, C180
- Thyroxine**  
skeletal muscle mitochondria, in thyrotoxicosis, C180
- Toxin**  
*Gymnodinium breve*, axonal repetitive firing (squid), C23
- Transmission, adrenergic neuromuscular**  
cadmium effects, C128  
epinephrine effects, C128  
lead effects, C128
- Triiodothyronine**  
enzyme responses, heart, C196  
skeletal muscle mitochondria, in thyrotoxicosis, C180
- Urinary bladder**  
aldosterone (toad), C174  
3'-deoxycytidine (toad), C174  
rRNA synthesis (toad), C174
- Vascular resistance: see** Resistance, vascular
- Vascular smooth muscle: see** Muscle, smooth, vascular
- Voltage clamp technique**  
*Gymnodinium breve* toxin, production of axonal repetitive firing (squid), C23
- Voltage-current relationship**  
skeletal muscle, ionic conductance, C109
- Volume markers**  
extracellular (frog skin), C37
- Zinc**  
plasma, leukocytic endogenous mediator effects, C15



# Author Index to Volume 1

Abercrombie, R. F., C163  
Armstrong, C. M., C211

Bagby, R. M., C5  
Bezanilla, F., C211  
Biber, T. U. L., C67  
Blaustein, M. P., C165  
Bose, D., C59

Coburn, R. F., C191  
Cooper, G. P., C128  
Crankshaw, D. J., C50

Daniel, E. E., C50  
DeFuria, R. R., C30

Edelman, I. S., C174, C196, C202

Fay, F. S., C138, C144  
Finn, A. L., C99  
Fisher, B. A., C5

Fisher, R. S., C37  
Fishman, A. P., C1

Gardiner, T. H., C132  
Goodman, F. R., C132

Helman, S. I., C37  
Holloszy, J. O., C180  
Horowicz, P., C3

Inciardi, J. F., C174

Janis, R. A., C50  
Johnson, J. A., C155  
Junod, A. F., C88, C95

Kim, Y. S., C23  
Kushmerick, M. J., C30

Lorković, H., C109  
Lyle, P. D., C83

Ma, T. S., C59  
Mapes, C. A., C15  
Mikulski, A. J., C115  
Moore, J. W., C23  
Morgan, D. L., C45  
Mullen, T. L., C67

Nakagawa, M., C115  
Nassar-Gentina, V., C185  
Nijima, A., C76

Ody, C., C88, C95

Padilla, G. M., C23  
Philipson, K. D., C196, C202

Rapoport, S. I., C185  
Reuss, L., C99  
Robbins, N., C83  
Rossier, B. C., C174

Sato, K., C207  
Singer, J. J., C138, C144  
Sobocinski, P. Z., C15  
Soltoff, S., C191  
Steinberg, D., C128

Tomanek, R. J., C109

Urist, M. R., C115

Vargas, F. F., C155  
Vergara, J. L., C185

Westerfield, M., C23  
Wilce, P. A., C174  
Winder, W. W., C180

Yen, K., C115  
Yoshimura, F. K., C174

MISNUMBERED VOLUME NUMBER  
SHOULD READ VOLUME 2



# Subject Index to Volume 1

- 4-Acetamido-4'-isothiocyanostilbene-2,2'-disulfonic acid  
pH transients, muscle fibers (barnacle), C61
- Acetylcholine  
cardiac muscle cell sensitivity (chick embryo), C172
- Acid  
transport, active, muscle fibers (barnacle), C61
- Action potentials: *see* Potentials
- Adenosine triphosphate: *see* also Magnesium-ATP  
myofibrillar, skeletal muscle, C14
- Adrenergic blockade: *see* Blockade
- Adrenergic fluorescent nerves  
uterine, distribution (guinea pig), C25
- Alcohol  
permeability, lung cells, C104
- Ammonium chloride  
pH transients, muscle fibers (barnacle), C61
- Apparatus and techniques  
electrodes: *see* Electrodes  
metal-film thermopiles, for right ventricular papillary muscle, C146  
microelectrodes: *see* Microelectrodes  
neuromuscular junction, quantal release and binomial statistical release parameters, estimation, C157  
radionuclide studies: *see* Radionuclide studies  
solid membrane ion-selective electrode for in vivo measurements, C56
- Autonomic agents  
cardiac muscle cell supersensitivity (chick embryo), C172
- Autonomic nerves  
distribution, uterine, C25
- B**ioelectrical behavior: *see* Electrical activity
- Blockade  
 $\alpha$ -adrenergic, glucose-induced electrical activity, islet cells, C164  
slow inward current, myocardial (embryonic chick), C99
- Blood-brain barrier  
protein transport during metrazole-induced convulsions, C74
- Blood flow  
skeletal muscle, C14
- Buffering power  
intracellular, muscle fibers (barnacle), C61
- C**alcium  
chelation, prolonged potentials, gastrointestinal muscle, C19  
tension regulation, skinned muscle fibers (crayfish), C127
- Calcium-sodium interactions  
gastrointestinal muscles, C19
- Capillary density  
skeletal muscle, C14
- Carbon dioxide  
pH transients, muscle fibers (barnacle), C61
- Carotid body  
cell membrane characteristics, temperature effects, C35
- Catecholamines  
slow inward current blockade, myocardial, at low pH (embryonic chick), C99
- Cations  
slow channels, myocardial (embryonic chick), C99
- Cells: *see* also specific site or type  
buffering power, muscle fibers (barnacle), C61  
energetics, oxygen tension effects, C135
- Cerebral vessels  
permeability: *see* Permeability  
protein transport during metrazole-induced convulsions, C74
- Cholinergic nerves  
distribution, uterine, C25
- Contraction: *see* Muscle
- Convulsions  
metrazole-induced protein transport, cerebrovascular, C74
- Coupling: *see* Excitation-contraction coupling
- Cross bridges  
latissimus dorsi muscle, heat production (chick), C1
- Current  
slow inward, myocardial, blockade at low pH (embryonic chick), C99
- D**enervation  
cardiac muscle cell sensitivity to autonomic agents (chick embryo), C172  
uterus, C25
- Desensitization  
cardiac muscle cells (chick embryo), C172
- Dose-response relation  
cardiac muscle cell sensitivity to autonomic agents (chick embryo), C172
- E**lectrical activity  
mesotubarium superius, estrogen withdrawal theory, C180  
somatostatin inhibition, islet cells, C164
- Electrodes  
solid membrane ion-selective, for in vivo measurements, C56
- Electromechanical uncoupling  
slow inward current, myocardial (embryonic chick), C99
- Electrophysiology  
cardiac muscle cells, isolated (chick embryo), C172
- Embryo  
slow inward current, myocardial, blockade at low pH (chick), C99
- Endocrine states  
smooth muscle, mesotubarium superius, C180
- Endothelium  
nonelectrolyte permeability, lung cells, C104
- End-plate potentials: *see* Potentials
- Energetics  
kidney cells, oxygen tension effects, C135
- Epinephrine  
glucose-induced electrical activity, islet cells, C164
- Epithelium  
nonelectrolyte permeability, lung cells, C104
- Estrogens  
reticuloendothelial development, C141
- Excitation-contraction coupling  
metabolic depletion, tracheal smooth muscle, C8
- metal-film thermopiles, C146
- Exercise, training  
contractile properties, soleus muscle, C86
- Extracellular ions: *see* Ions
- F**atigue  
skeletal muscle: *see* muscle, skeletal
- Female reproductive system: *see* Reproductive system
- Fetus: *see* also Placenta  
chronic preparation, C111
- G**anglia  
paracervical, distribution, uterus, C25
- Gastrointestinal tract  
potentials, prolonged, calcium chelation-induced, C19
- $\gamma$ -Globulin  
prenatal transfer, C111
- Glomus cells  
membrane characteristics, temperature effects, C35
- Glucose  
electrical activity, islet cells, somatostatin inhibition, C164
- Glucose-free medium  
tracheal smooth muscle, during metabolic depletion, C8
- H**earth  
muscle cells, sensitivity to autonomic agents (chick embryo), C172
- Heart ventricles  
slow inward current, blockade at low pH (embryonic chick), C99
- Heat  
initial, metal-film thermopiles, C146  
production rate, related to filament overlap in latissimus dorsi muscle (chick), C1
- Histamine  
tracheal smooth muscle, during metabolic depletion, C8
- Hormonal control  
reticuloendothelial development, C141
- Horseradish peroxidase  
cerebrovascular permeability during metrazole-induced convulsions, C74

Hydrophilic molecules  
 transfer, placenta, C111  
 transfer, yolk sac, C111

Hypogastric nerves  
 distribution, uterine, C25

Hypoxia  
 energetics, kidney cells, C135

**I**  
 Input resistance: *see* Resistance

Insulin  
 secretion, somatostatin inhibition, islet cells, C164

Ions  
 carotid body cell membrane response to temperature, C35  
 extracellular activity, measurement, C56

Islet cells  
 electrical activity, inhibition, C164  
 somatostatin, C164

**K**  
 Kidney cells  
 energetics, oxygen tension effects, C135

**L**  
 Latissimus dorsi muscle  
 heat liberation, related to filament overlap (chick), C1  
 Length-tension relations  
 taenia coli, C47

Loading  
 step, taenia coli smooth muscle, C47

Lung cells  
 permeability to nonelectrolytes, C104

**M**  
 Magnesium-ATP  
 tension regulation, skinned muscle fibers (crayfish), C127

Membrane permeability: *see* Permeability

Membrane potentials: *see* Potentials

Mesotubarium superius  
 bioelectrical behavior, C180  
 contractile behavior, C180  
 estrogen withdrawal, C180

Metabolic depletion  
 excitation-contraction coupling, tracheal smooth muscle, C8  
 rhythmicity, tracheal smooth muscle, C8

Metal-film thermopiles: *see* Thermopiles

Methylxanthines  
 slow inward current blockade, myocardial, at low pH (embryonic chick), C99

Metrazole  
 convulsions, protein transport, cerebral vessels, C74

Microelectrodes  
 pH transients, muscle fibers (barnacle), C61

Microscopy  
 yolk sac placenta, C111

Mitochondria, kidney cells  
 oxygen tension effects, C135

Muscle  
 filaments: *see* Myofilaments  
 heat production, latissimus dorsi (chick), C1

Muscle cells  
 heart, high sensitivity to autonomic agents (chick embryo), C172

Muscle fibers  
 pH transients, intracellular (barnacle), C61

Muscle fibers, skinned  
 calcium effects (crayfish), C127  
 contraction (crayfish), C127  
 magnesium-ATP (crayfish), C127  
 tension, regulation (crayfish), C127

Muscle, heart  
 excitation-contraction coupling, C146  
 metal film thermopile, for right ventricular papillary muscle, C146

Muscle, skeletal  
 ATPase, myofibrillar, C14  
 blood flow, C14  
 capillary density, C14  
 contractility, soleus, training and fatigue effects, C86  
 fatigability, C14  
 fatigue, contractile properties, soleus muscle, C86  
 oxidative capacity, C14  
 oxygen consumption, maximum, C14  
 physiological characteristics, C14  
 shortening velocity, maximum, soleus, C86  
 succinic acid dehydrogenase, C14  
 tension development, peak rate, soleus muscle, C86  
 tetanic tension, soleus muscle, C86  
 twitch tension, soleus, C86

Muscle, smooth  
 bioelectrical behavior, mesotubarium superius, C180  
 calcium chelation-induced potentials, gastrointestinal, C19  
 endocrine states, mesotubarium superius, C180  
 estrogen withdrawal, effects, mesotubarium superius, C180  
 excitation-contraction coupling during metabolic depletion, trachea, C8  
 force-velocity relationships, trachea, C92  
 mechanical properties, trachea, C92  
 length-tension, taenia coli, C47  
 myogram, isometric, trachea, C92  
 reproductive system, female, studies, C180  
 rhythm, minute, taenia coli, C47  
 rhythmicity during metabolic depletion, trachea, C8  
 step loading, taenia coli, C47  
 step stretch, taenia coli, C47  
 stress-strain, taenia coli, C47  
 temperature effects, trachea C92  
 tension, isometric, mesotubarium superius, C182

Muscle, smooth, contraction  
 contractile behavior, mesotubarium superius, C180  
 estrogen withdrawal, mesotubarium superius, C180  
 isometric, taenia coli, C47  
 isotonic, taenia coli, C47  
 spontaneous, taenia coli, C47

Myocardial cells  
 supersensitivity to autonomic agents (chick embryo), C172

Myocardium: *see also* Muscle, heart  
 slow inward current, blockade at low pH, (embryonic chick), C99

Myofibrils  
 ATPase, skeletal muscle, C14

Myofilament  
 overlap, latissimus dorsi muscle, related to heat production (chick), C1

Myogram  
 isogram, trachea, C92

Myometrium  
 innervation, C25

**N**  
 Neonate  
 reticuloendothelial development, hormonal influences, C141

Neuromuscular junction  
 end-plate potentials, C157  
 mobilization, C157  
 nonlinear summation, C157  
 Poisson distribution, C157  
 quantal release and binomial statistical release parameters, estimation, C157  
 quantum size, C157  
 releasable store, C157  
 transmitter release, C157

Nonelectrolytes  
 lung cell permeability, C104

Norepinephrine  
 autonomic nerves, uterine, distribution (guinea pig), C25  
 cardiac muscle cell sensitivity (chick embryo), C172

**O**  
 Ouabain  
 carotid body cell membrane response to temperature, C35

Oxidative capacity  
 skeletal muscle, C14

Oxygen  
 consumption, skeletal muscle, C14  
 tension, energetics, kidney cells, C135

**P**  
 Papillary muscle: *see* Muscle, heart

Paracervical ganglia  
 distribution, uterine, C25

Permeability  
 cerebrovascular, during metrazole-induced convulsions, C74  
 cerebrovascular, horseradish peroxidase, C74  
 lung cells, isolated, to nonelectrolytes, C104

pH  
 myocardial slow inward current, blockade (embryonic chick), C99  
 slow inward current sensitivity (embryonic chick), C99  
 transients, intracellular, muscle fibers (barnacle), C61

Placenta: *see also* Fetus  
 chorionallantoic, C111  
 hydrophilic molecules, transfer, C111  
 prenatal serum protein concentration, C111  
 steric restriction, C111  
 transfer, diffusional, C111  
 transfer, prenatal  $\gamma$ -globulin, C111

Poisson distribution  
 neuromuscular junction, C157

Potassium  
 solid membrane ion-selective electrode for in vivo measurement, C56

Potentials  
 action, cardiac muscle cell sensitivity (chick embryo), C172  
 end-plate, neuromuscular junction, C157  
 membrane, carotid body, temperature effects, C35  
 prolonged, calcium chelation-induced, gastrointestinal muscles, C19  
 transmembrane, estrogen withdrawal, mesotubarium superius, C180

Protein  
 serum, prenatal concentration, C111  
 transport, cerebral vessels, during metrazole-induced convulsions, C74



- Quantum size**  
neuromuscular junction, C157
- Radionuclide studies**  
placental transfer, hydrophilic molecules, C111
- Receptors**  
cardiac muscle cells, sensitivity to autonomic agents (chick embryo), C172
- Reproductive system, female**  
smooth muscle studies, C180
- Resistance**  
input, carotid body cell membranes, temperature effects, C35
- Respiratory rate**  
oxygen tension effects, kidney cells, C135
- Reticuloendothelial system**  
development, hormonal influences, C141
- Rhythmicity**  
metabolic depletion, tracheal smooth muscle, C8
- Sensitivity: see also Supersensitivity**  
cardiac muscle cells, cultured, to autonomic agents (chick embryo), C172
- Shortening velocity**  
soleus muscle, C86
- Skeletal muscle: see Muscle, skeletal**
- Slow inward current: see Current**
- Smooth muscle: see Muscle, smooth**
- Sodium**  
flux ratio, and electromotive force of sodium transport, C188
- Soleus muscle**  
contractility, training and fatigue effects, C86
- Somatostatin**  
inhibition, glucose-induced electrical activity, islet cells, C164
- Stimulus-secretion coupling**  
islet cells, C164
- Stress-strain relations**  
taenia coli, C47
- Stretch**  
step, taenia coli smooth muscle, C47
- Supersensitivity**  
cardiac muscle cells, cultured, to autonomic agents (chick embryo), C172
- Taenia coli: see also Muscle, smooth**  
mechanical properties in spontaneous contraction, C47
- Temperature**  
force-velocity relationships, trachea, C92  
mechanical properties, tracheal smooth muscle, C92  
membrane characteristics, carotid body cells, C35  
myogram, isometric, trachea, C92
- Temperature, body**  
heat production: *see* Heat
- Tension**  
development, peak rate, soleus muscle, C86  
isometric, mesotubarium superius, C180  
regulation, magnesium-ATP effects, muscle fibers (crayfish), C127  
tetanic, soleus muscle, C86  
twitch, soleus muscle, C86
- Tetanus**  
isometric, heat production, latissimus dorsi muscle (chick), C1
- Thermopiles**  
metal-film, for right ventricular papillary muscle, C146  
metal-film, initial heat, C146  
vacuum-deposited, C146
- Trachea: see also Muscle, smooth**  
rhythmicity during metabolic depletion, C8  
temperature effects, C92  
mechanical properties, C92
- Training: see Exercise, training**
- Transmembrane potentials: see Potentials**
- Transmitter**  
release, neuromuscular junction, C157
- Trypsinization**  
cardiac muscle cells, supersensitivity (chick embryo), C172
- Twitch tension: see Muscle; Tension**
- Uncoupling**  
electromechanical, slow inward current, myocardial (embryonic chick), C99
- Uterus**  
autonomic nerves, distribution, C25  
innervation, C25
- Vascular innervation**  
uterine, C25
- Ventricles: see Heart ventricles**
- Yolk sac**  
function, suppression, C111  
hydrophilic molecules, transfer, C111



## Author Index to Volume 2

Alm, P., C25  
Alpert, N. R., C146

Barclay, J. K., C14  
Baron, M., C35  
Boron, W. F., C61  
Bose, D., C8  
Bose, R., C8  
Brandt, P. W., C127

Cardinal, R., C92  
Conant, S., C164  
Conrad, J. T., C180  
Crowe, W., C56

Drown, C., C135

Erecińska, M., C135  
Eyzaguirre, C., C35

Faber, J. J., C111

Faulkner, J. A., C14  
Fisher, R. S., C188  
Fitts, R. H., C86  
Fung, Y. C., C47

Garrick, R. A., C104

Hedley-Whyte, E. T., C74  
Helman, S. I., C188  
Hermesmeyer, K., C172  
Hollozzy, J. O., C86  
Holt, J. A., C141  
Hsu, D. W., C74

Kreulen, D. L., C19

Lacy, P. E., C164  
Lorenzen, J. R., C141  
Lorenzo, A. V., C74  
Luhr, G., C146

Macchia, D. D., C188  
Matsumoto, Y., C1  
Maxwell, L. C., C14  
Mayevsky, A., C56  
McPhedran, A. M., C1  
Mela, L., C56  
Mohrman, D. E., C14  
Mulieri, L. A., C146  
Murphy, M., C164

O'Neil, R. G., C188  
Orentlicher, M., C127  
Owman, C., C25

Pace, C. S., C164  
Patitucci, P., C47  
Price, J. M., C47  
Prosser, C. L., C19

Redwood, W. R., C104  
Reuben, J. P., C127

Robinson, R. B., C172

Saba, T. M., C141  
Silver, I. A., C135  
Simmons, B., C92  
Sjöberg, N.-O., C25  
Sperelakis, N., C99  
Stephens, N. L., C92

Thorbert, G., C25  
Thornburg, K. L., C111  
Trefry, J., C146

Vogel, S., C99

Weigel, R. J., C19  
Wilson, D. F., C157  
Wilson, D. F., C135

Yau, W., C19



